AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A method for detecting an information signal, a tone of a specified frequency, or a phase change of the tone in a signal which contains the information signal or the tone, the method comprising:

dividing the signal into a plurality of blocks corresponding to time segments of the signal, wherein the blocks have an adjustable length which is set to ensure accurate detection of the information signal, the tone or the phase change;

selecting a predetermined number of the blocks to be processed for detection, wherein the blocks which are not selected are not further processed;

transforming sample values of the ~~signal in~~ selected predetermined number of the blocks from the time domain to the frequency domain, to produce at least one output value; and

detecting the information signal, the tone or the phase change based on said at least one output value.

2. (Currently Amended) The method in particular according to claim 1, wherein said detecting comprises mapping a plurality of output values for the selected predetermined number of the blocks, and generating a decision value based on a result of said mapping.

3. (Previously Presented) The method according to claim 2, wherein the mapping comprises a summation of the output values.

4. (Previously Presented) The method according to claim 2, wherein the mapping comprises a product of the output values.

5. (Previously Presented) The method according to claim 1, wherein the transforming is frequency-selective and is adjusted to the frequency of the tone currently to be detected.

6. (Currently Amended) The method according to claim 1, wherein the transforming comprises applying a Fourier transform to the sample values of the selected predetermined number of the blocks.

7. (Currently Amended) The method according to claim 1, wherein the transforming comprises multiplying the sample values of the selected predetermined number of the blocks by a window function and then applying a Fourier transform to the sample values of the selected predetermined number of the blocks multiplied by the window function.

8. (Previously Presented) The method according to claim 6, wherein the Fourier transform is computed by using a Goertzel algorithm which is adjusted to the specified frequency of the tone to be detected.

9. (Currently Amended) The method according to claim 1, wherein said detecting step comprises detecting a phase ~~relation~~ at a first moment and a second moment occurring a predetermined time after the first moment ~~to determine a phase change~~ from complex output values of the transforming step, ~~comparing~~ determining a first phase difference between the phase ~~relations~~ at the first moment and the phase at the second ~~moments with~~ moment, determining a second phase difference between the phase ~~relations~~ of the second moment and the phase at a third moment occurring the predetermined time after the second moment, and determining whether a phase change exists based on a result of ~~the comparing~~ a comparison of the ~~two~~ first and second phase differences.

10. (Previously Presented) The method according to claim 9, wherein the transforming is performed using complex multiplication.

11. (Currently Amended) The method according to claim 9, characterised by ~~its wherein~~ the implementation [[by]] of an evaluation of the formula

$$\tilde{y}_{v}(N\text{-}1)\,\tilde{y}^{*}_{v+2}(N\text{-}1)\,\tilde{\tilde{y}}^{*}_{v+2}(N\text{-}1)\,\tilde{y}_{v+4}(N\text{-}1) = z$$

where z is a decision variable, $\tilde{y}_v$ and [[$\tilde{y}_{v+2}$]] $\tilde{y}_{v+4}$ denote output signals of selected predetermined blocks v and [[v+2]] and v+4, respectively, $\tilde{y}^*_{v+2}$ denotes a conjugated complex output signal of selected predetermined block [[v+4]] v+2 and N denotes a block length of the selected predetermined blocks v, v+2 and v+4.

12. (Currently Amended) The method according to claim 1, wherein the adjustable length of the ~~blocks or a number of~~ selected predetermined number of blocks used for detection is adjusted as a function of the signal/noise ratio (SNR) of the signal so that a substantially constant error rate of detection is achieved over a range of signal/noise ratios.

13. (Canceled)

14. (Currently Amended) A device for detecting an information signal, a tone a phase change of the tone in at least one signal which contains the information signal or the tone, the device comprising:

[[a]] an analog-to-digital converter for converting the signal into a plurality of sample values; and

a detector for dividing sample values of the signal into a plurality of blocks corresponding to time segments of the signal, wherein the blocks have an adjustable length which is set to ensure accurate detection of the information signal, the tone or the phase change, selecting a predetermined number of the blocks to be processed for detection, transforming the

sample values ~~in selected~~ of the selected predetermined number of the blocks from the time domain to the frequency domain to produce at least one output value, and detecting the information signal, the tone or the phase change based on said at least one output value, wherein the blocks which are not selected are not processed.

15. (Previously Presented) The device according to claim 14, further comprising a memory device and a control device which during operation supplies data contained in the memory device concerning tones to be detected to the detector which generates an output signal indicating whether the tone or the phase change has been detected.